

S/N 10/777,957

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Paul Shirley et al.

Examiner: Bibi Sharidan Carrillo

Serial No.: 10/777,957

Group Art Unit: 1746

Filed: February 13, 2004

Docket: 303.774US2

Title: SPINDLE CHUCK CLEANER

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

The applicant requests review of the final rejection in the above-identified application.
No amendments are being filed with this request.

This request is being filed with a Notice of Appeal.

The review is requested for the reason(s) stated below:

Applicant believes there is a clear deficiency in the prima facie case in support of the rejections.

§103 Rejection of the Claims

All of the claims currently under consideration in this case were rejected using the combination of Shuji and Maeda. Claims 34-39 and 55-62 were rejected solely on this basis. For three of the claims (40-42) under consideration, an additional reference was added to the basic rejection.

All the claims under consideration in this case include the limitation to vacuuming the contaminants. Claim 33 recites "...moving the cleaning surface into contact with the support adapted to releasably hold a wafer; and removing contaminants from the support by vacuuming the contaminants through the cleaning head assembly." Claims 34-42 depend from claim 33 and include this limitation by their dependency. Claim 55 also recites "...removing contaminants from the support adapted to releasably hold a wafer by vacuuming the contaminants through the cleaning surface." Claims 57-62 depend from claim 56 and include this limitation by their dependency. As pointed out in the response of October 28, 2005, the Shuji reference removes contaminants from the support or spin chuck in the opposite way. The spin chuck cleaning device of the Shuji reference removes contaminants by jetting them off. In other words,

contaminants are removed by literally blowing them off the spindle chuck with a “jet port jetting acetone and N₂ gas” (see lines 4 and 5 of the Solution portion of the Abstract).

The Examiner suggests modifying the Shuji reference with the Madea et al. reference. No matter how the Shuji reference is modified with the Madea et al. reference, the Shuji reference is destroyed. If the vacuum device of Madea et al. is substituted for the jet ports of Shuji, the Shuji reference is destroyed (see responses, sections B, D and E of the Response dated October 28, 2005).

In the advisory action, the Examiner suggests adding the Madea et al. vacuum to the jet ports of Shuji. In such an arrangement, the vacuum of Madea et al. will work against the jet ports of Shuji thereby compromising the cleaning ability of the device. In other words, adding the vacuum device of Madea et al. to supplement the jet port of Shuji compromises the jetting action used to clean the spindle chuck thereby destroying the Shuji reference. In one instance, the Madea et al. vacuum will remove some of the acetone and N₂ gas thereby compromising the jetting action of the acetone and N₂ gas. If somehow the Madea et al. vacuum can be arranged so that none of the fluids passing from the jet port are removed by the Madea et al. vacuum, the pressure differential used to jet off the spindle will be reduced thereby reducing the effectiveness of the jet ports. As a result, a proper *prima facie* case of obviousness is not made since no matter how these two references are combined, the Shuji reference is destroyed. This destruction of the purpose of the reference is evidence against a reason to modify or combine the references. In addition there is no reasonable expectation of success since the combination would either not work, or the effectiveness for cleaning would be compromised since the vacuum would work against the jet ports and vice versa. If the vacuum of Madea et al. is to be used without the jet ports of Shuji, then the jet ports of Shuji have been rendered ineffective, thus destroying the Shuji reference. If this is the Examiner's position, then the Office Action appears to have used the applicant's disclosure as a road map for the combination.

In addition, the Madea et al. reference teaches removing contaminants from an entirely different portion of the semiconductor fabrication apparatus. Madea et al. does not even teach or suggest removing contaminants from the support or spindle chuck but, rather, teaches cleaning of the gas manifold for placing gas into the chamber during a chemical vapor deposition process. Therefore, it is doubtful one of ordinary skill in the art of cleaning a chuck or head for holding

the wafers would look to a reference that cleaned an entirely different portion of a semiconductor fabrication apparatus.

In summary, neither the Office Action dated June 2, 2005 or the Advisory Action dated November 10, 2005, set forth a proper *prima facie* case of obviousness with respect to the claims since there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. In fact, combining the teachings would destroy the purpose of the Shuiji reference. This destruction of the purpose of the reference is evidence against a reason to modify or combine the references. In addition there is no reasonable expectation of success since the combination would not work, for the reasons described above. Moreover, the Office Action appears to have used the applicants disclosure as a road map for the combination. As a result, the claims now overcomes the rejection under 35 U.S.C. § 103(a) as being unpatentable over Shuiji (JP10-294261) in view of Maeda et al. (U.S. Patent No. 5,330,577).

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Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 349-9587 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

PAUL SHIRLEY ET AL.

By their Representatives,

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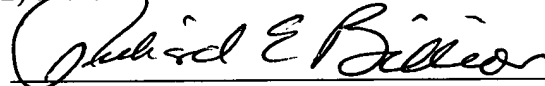
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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 2 day of December, 2005.

Name

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Signature

